

WHAT IS CLAIMED IS:

1. A thin film magnet having a microstructure composed of crystalline phases of the  $\text{Nd}_2\text{Fe}_{14}\text{B}$  structure type, whose c-axis is oriented in a film-thickness direction, and amorphous phases, wherein each said  $\text{Nd}_2\text{Fe}_{14}\text{B}$  type crystalline phase is isolated from the others by the amorphous phase, and said film is formed by forming a  $\text{R}_x\text{M}_{1-x-y}\text{B}_y$  thin film (in the formula, R is one (1) or more elements selected from the group consisting of Nd, Pr, Tb, Ho and Dy, M is one (1) or more elements selected from the group consisting of Fe, Co and Ni and  $0.11 \leq x \leq 0.15$ ,  $0.12 \leq y \leq 0.20$ ) on a substrate by a physical deposition method while controlling a temperature of the front side of said substrate within a range of  $\pm 2^\circ\text{C}$ .

2. The thin film magnet according to Claim 1, wherein said amorphous phases are ferromagnetic.

3. A process of producing a thin film magnet having a microstructure composed of crystalline phases of the  $\text{Nd}_2\text{Fe}_{14}\text{B}$  structure type, whose c-axis is oriented in a film-thickness direction, and amorphous phases, wherein each said  $\text{Nd}_2\text{Fe}_{14}\text{B}$  type crystalline phase is isolated from the others by the

amorphous phase, comprising the step of forming a  $R_xM_{1-x-y}B_y$  thin film (in the formula, R is one (1) or more elements selected from the group consisting of Nd, Pr, Tb, Ho and Dy, M is one (1) or more elements selected from the group consisting of Fe, Co and Ni and  $0.11 \leq x \leq 0.15$ ,  $0.12 \leq y \leq 0.20$ ) on a substrate by a physical deposition method while controlling a temperature of the front side of said substrate within a range of  $\pm 2^\circ\text{C}$ .